

1. (original) An apparatus for providing information to the driver of a vehicle while the driver is watching the road through the windshield without requiring that the driver remove his eyes from the road, the apparatus comprising:

a positioning device which determines the location of the vehicle;

a storage device including stored information about the location of a desired driver action;

a comparator which compares the location of the vehicle with the stored information about the location of the desired driver action and which provides a signal when the location of the vehicle is in a predetermined relationship to the location of the desired driver action; and

a projector which displays a message on the windshield indicating the desired driver action in response to the signal.

2. (original) An apparatus of the type described in Claim 1 where the projector is a heads-up display.

3. (original) An apparatus of the type described in Claim 1 wherein the apparatus further includes an audible indicator of a message in response to the signal.

4. (original) An apparatus of the type described in Claim 3 wherein the audible indicator includes a speech synthesis system which provides an audible message.

5. (original) An apparatus of the type described in Claim 3 wherein the audible indicator includes a speech synthesis system which can provide at least one audible message which is selected based on the desired driver action.

6. (original) An apparatus of the type described in Claim 3 wherein the audible indicator includes a first indicator at a first distance from the desired location and a second indicator at a second, shorter distance from the desired location.

7. (original) An apparatus of the type described in Claim 1 wherein the apparatus includes an indicator that the driver did not make the desired driver action, whereby the driver receives an indication of the missing of the desired driver action after the desired driver action was missed.

8. (original) An apparatus of the type described in Claim 1 wherein the system includes a wireless receiver which receives broadcast traffic information and is coupled to the projector to display the broadcast traffic information.

9. (original) An apparatus of the type described in Claim 1 wherein the system includes a wireless receiver which receives weather information sent from outside the vehicle, with the wireless receiver coupled to the projector for displaying the weather information to the driver.

10. (original) An apparatus of the type described in Claim 1 wherein the system includes a wireless receiver which receives advertising information and couples to the projector to display the advertising information to the driver.

11. (original) A method of providing driving instructions including the steps of  
sensing the position of the vehicle;  
comparing the position of the vehicle with a desired location;  
if the vehicle is in a predetermined position with respect to a desired location, generating a signal which indicates that the driver should take an action; and  
in response to the signal, displaying on the windshield a message indicating the action the driver should take.

12. (original) A method including the steps of Claim 11 wherein the step of generating a signal includes the step of providing an audible signal indicating that the driver should take an action.

13. (original) A method including the steps of Claim 12 wherein the step of providing an audible signal indicates that a message is displayed on the windshield.

14. (original) A method including the steps of Claim 12 wherein the step of providing an audible signal includes the step of broadcasting the message on a speaker.

15. (original) A method including the steps of Claim 11 wherein the method further includes the step of displaying a distance to the desired action.

16. (original) A method including the steps of Claim 11 where the method further includes the step of determining the speed of the vehicle and providing an indication of a desired action a predetermined time period in advance of the desired action.

17. (original) A method including the steps of Claim 11 wherein the method further includes the step of determining when the vehicle has passed the desired location and providing an indication that the driver has missed the turn, whereby the driver may take action more quickly to recover from missing the desired location.

18. (original) A method including the steps of Claim 11 wherein the predetermined relationship is estimated time to the desired location.

19. (original) A method including the steps of Claim 11 wherein the predetermined relationship is distance to the desired location.

20. (original) A program stored on a storage medium for generating a displayed message to a driver on the windshield of his car, the program comprising:

a program element for determining a message for display;

a program element for determining an appropriate time for displaying the message;

a program element coupled to a projector for providing a message for display at the appropriate time for the display, whereby the message can be displayed to the driver on the windshield of his car at the appropriate time.

21. (original) A program of the type described in Claim 20 wherein the program element for determining the message for display includes a stored program indicating at least one desired driving direction and a location for that driving direction to be displayed and the program further includes a program element for determining when the car is in the location for the driving direction to be displayed.

22. (original) A program of the type described in Claim 21 wherein the program element for determining when the car is in the location for the direction to be displayed includes a program element for receiving global positioning information.

23. (original) A program of the type described in Claim 20 wherein the program element for storing at least one driving direction includes a program element for receiving the driving instruction from a remote source.

24. (original) A program of the type described in Claim 20 where the program element for storing at least one driving direction includes a stored navigational program.

25. (original) A service for providing information to the driver of a vehicle comprising:  
receiving at least one desired destination associated with the driver;

determining a route for the driver to reach the destination including at least one turn for the vehicle to reach the destination;

determining the location of the vehicle and when the vehicle is approaching the at least one turn and providing a message to the vehicle;

displaying the message for the vehicle on the windshield when the vehicle is approaching the at least one turn so that the driver may be informed of the turn at an appropriate time without requiring the driver to remove his eyes from the windshield.

26. (previously presented) A system for displaying information to a driver in a vehicle comprising:

a location system which determines the location of the vehicle;

a storage device which provides a picture of the roadway near the location of the vehicle in response to the location of the vehicle;

a device which generates a display of the picture of the roadway on the windshield of the vehicle allowing the driver of the vehicle to see the display without removing his eyes from the roadway.

27. (previously presented) A system of the type described in Claim 26 wherein the picture displayed is a live picture.

28 (previously presented) A system of the type described in Claim 27 wherein the live picture is from a camera mounted over the roadway.

29. (previously presented) A system of the type described in Claim 26 wherein the display includes driving directions.

30. (previously presented) A system of the type described in Claim 29 wherein the display includes driving directions in the form of a turn indicated on the picture of the roadway.

31. (previously amended) A system of the type described in Claim 26 wherein the picture is a picture taken previously and stored in memory.

32. (previously amended) A method for displaying information to a vehicle driver comprising the steps of:

determining the position of the vehicle;

finding a picture of an intersection based on the position of the vehicle;

displaying the picture of the intersection on the windshield of the vehicle so that the driver can see the picture while looking out the windshield.

33. (previously amended) A method of displaying information including the steps of Claim 32 wherein the step of finding a picture includes the step of retrieving a stored picture of the roadway from memory.

34. (previously amended) A method of displaying information including the steps of Claim 32 wherein the step of finding a picture includes the step of receiving a live picture of the roadway.

35. (previously amended) A method of displaying information including the steps of Claim 34 wherein the step of finding a picture includes the step of receiving a live picture from a camera mounted above the intersection.

36. (previously amended) A method of displaying information including the steps of Claim 32 wherein the step of displaying a picture of the intersection further includes the step of adding driving instructions to the display.